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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Washington, DC 20007-5116				
		EXAMINER		
		RU, POWEN		
		ART UNIT		PAPER NUMBER
		2194		
DATE MAILED: 07/06/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/511,738		GUSTAVSSON, MATS	
	Examiner		Art Unit	
	Powen Ru		2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/18/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/18/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20041018, 20050209</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the initial office action based on the application filed on 10/18/2004.

Claims 1-20 are currently pending and have been considered below.

Specification

1. The abstract of the disclosure is objected to as failing to comply with 37 CFR 1.72(a), because it exceeds 150 words in length (151 words). The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. Simply removing the reference numbers will overcome this objection. Correction is required.

2. The disclosure is objected to because of the following informalities:

- The reference citation "WO96/3513" (page 2 line 7) should be "WO96/35313" according to the IDS form.
- The "fist exchanging member" (page 5 line 7) should be "first exchanging member".
- The "first surface 1' of the membrane" (Abstract and page 7 lines 36-37) should be the "second surface 1" of the membrane" in order to be consistent with the drawings (Fig.1, 2, 7-9).

Appropriate correction is required.

3. The specification is objected to as improperly citing claim numbers:

- Page 3 line 5: claim 1
- Page 6 line 10: claim 18

As the claim numbers are subject to reordering after prosecution, merely citing claim numbers in the specification may lead to confusion. The Applicant should recite the necessary text from the cited claims to ensure the clarity of the disclosure. Appropriate correction is required.

Claim Objections

4. Claims 1 and 18 are objected to because of the following informalities: the “first surface of the membrane” (Claim 1 lines 6-7 and Claim 18 line 5) should be the “second surface of the membrane” in order to be consistent with the drawings (Fig.1, 2, 7-9). Appropriate correction is required.

5. Claim 9: Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation to comply with 37 CFR 1.75(i).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 3, 4, 5, 7, 10 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "activating member" in line 1. There is insufficient antecedent basis for this limitation in the claim. According to the reference number (20) before the preliminary amendment, it should be the "actuating member" as in Claim 1. The Examiner also notices that the Applicant uses the term "activating member" in the specification occasionally (e.g., page 3 lines 5-15). The Applicant should use consistent terminology to make the document easy to read. Appropriate correction is required to overcome the rejection.

Claim 4, 5, 10, and 20: The term "substantially" is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Applicant should remove the relative terms and add the acceptable deviation if desired.

Claim 7: The term "relatively" is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Applicant should clearly declare the required rigidity for the link element capable of perform the intended functions.

8. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: "at least one exchanging member". Besides, the sub-elements are listed in wrong order. The Examiner considers that the "at least one actuating member" should include a first actuating member and a second actuating member; the "at least one exchanging member" should include a first exchanging member and a second exchanging member.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 2, 10, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namon (3,107,746).

Claim 1: Namon discloses a device for actuating a membrane (plate wall member 311, col 3 lines 40-45, Fig. 9) arranged in an opening to a space, wherein the membrane has a first surface and a second opposite surface, and is limited by an edge area (end portions 313 and 314), extending around the membrane, wherein the device includes: a first strip (plate 511, col 4 line 5-11), which can be adapted to be attached to the surface of the membrane in the edge area; at least one exchanging members (links 540 and 541, col 4 lines 5-11, Fig. 11); and at least one actuating members (voice coils

330 and 331, col 3 lines 44-46, Fig. 9) arranged to transfer a reciprocating primary movement to the exchanging member, which is arranged to convert the primary movement (concurrent longitudinal reciprocation, col 4 lines 9-10) to a reciprocating secondary movement (plate to be reciprocated, col 4 lines 10-11) having a longer length of stroke than the primary movement (col 4 lines 9-11); but does not disclose a second strip. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second strip with similar structure to the first strip except that the orientation is mirror-opposite. As an additional strip will enable the device to be attached to a surface of a frame portion, one would have been motivated to add a second strip (plate) along with the links to Namon's device in such a way that the strips moves towards and away from the other strip.

Claim 2: Namon discloses a device as in Claim 1; and further discloses the primary movement extends along a primary axis (x) (longitudinal direction along the plate 511) and the secondary movement extends along a secondary axis (z) (plate 511 reciprocable perpendicular to its direction of elongation, col 4 lines 4-6) forming an angle to primary axis (see Fig. 11).

Claim 10: Namon discloses a device as in Claim 2; and further discloses the angle between the primary axis (x) and the secondary axis (z) is substantially perpendicular (plate 511 reciprocable perpendicular to its direction of elongation, col 4 lines 4-6).

Claim 11: Namon discloses a device as in Claim 2; and further discloses the at least one actuating member (voice coils 330 and 331, see Fig. 9) is provided between

(at pin points 543, see Fig. 11) the first strip and the second strip (obvious addition, see Claim 2).

Claim 13: Namon discloses a device as in Claim 2; and further discloses the membrane has an at least partially curved shape (e.g., segmentally cylindrical, col 2 lines 20-25, or wall member 311 in Fig. 9).

11. Claims 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namon (3,107,746) and in view of Burke (3,484,006).

Claim 3: Namon discloses a device as in Claim 2; but does not disclose a rod which extends between and substantially in parallel to the strips and does not disclose more than one links in each exchanging member. However, Burke discloses a tool having a rod (link 13, e.g., col 2 line 29) along with more than one links (arms 11 and 12, e.g., col 2 lines 25-30), a strip (4th arm 14 in parallel to link 13, e.g., col 2 lines 30), and an actuator (piston rod 20 and cylinder unit 21, e.g., col 2 lines 40-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a rod between and substantially in parallel to the strips to move more than one links. As more links can support a longer strip, one would have been motivated to add more links and a rod as suggested by Burke in Namon's device to move the links in unison so that the strips can be moved along the desirable axis.

Claim 4: Namon and Burke disclose a device as in Claim 3; and Namon further discloses that the actuating member (voice coil 331 or 332, see Fig.9; not activating member, see **Claim Rejections - 35 USC § 112**) is arranged to transfer the primary

movement to the rod in such a way that it reciprocates in its longitudinal direction (a hyper line connecting between pins 543, see Fig. 11) and substantially in parallel with the primary axis (x) (longitudinal direction along the plate 511), wherein the strips will move towards and away from each other substantially in parallel with the secondary axis (z) (up and down with respect to the plate 511).

Claim 5: Namon and Burke disclose a device as in Claim 3; but Namon does not specifically disclose that the link elements extend substantially in parallel to each other. However, Burke discloses that the link elements (arms 11 and 12) extend in parallel to each other (see Fig. 1) so that the link elements can move without tilting (col 2 lines 52-58). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the links parallel to each other. As the whole strip needs to move without tilting, one would have been motivated to arrange the links parallel to each other as suggested by Burke in Namon's device to ensure the strips will move substantially in parallel with the secondary axis.

Claim 6: Namon and Burke disclose a device as in Claim 3; and Namon further discloses that each link element has a first end (slot 542, col 4 lines 5-10), which is articulately connected to the rod in a flexible first joint (pin 543, col 4 lines 5-10), and a second end (544, col 4 lines 5-10), which is articulately connected to the respective strip in a flexible second joint (pivot 545, col 4 lines 5-10).

Claim 7: Namon and Burke disclose a device as in Claim 6; but Namon does not specifically disclose that each link element is rigid. However, Namon teaches that the inherent rigidity of the strip (plate, col 4 lines 25-30) permits high power outputs with

effectively minimized distortion over and extended frequency range. One having ordinary skill in the art could have easily conceived of using material rigid enough to make the links reciprocating the rigid strip.

Claim 8: Namon and Burke disclose a device as in Claim 3; and Namon further discloses that each link element extends from the respective strip towards the actuating member in such a way that the first and second (obvious addition, see Claim 1) link elements form an arrow-like configuration pointing towards the actuating member.

Claim 9: Namon and Burke disclose a device as in Claim 8; and Namon further discloses that each link element extends from the respective strip towards the actuating member in such a way that the first and second (obvious addition, see Claim 1) link elements form an arrow-like configuration pointing towards the actuating member.

12. Claims 12 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namon (3,107,746) and in view of Mark (5,812,684).

Claim 12: Namon discloses a device as in Claim 2; but does not specifically disclose a piezoelectric element. However, Mark discloses at least two piezoelectric elements (piezoceramic actuators 42 and 44, e.g., col 3 lines 1-5) in a passenger compartment noise attenuation apparatus for use in a motor vehicle. The Examiner notes that it is well known in the art that "piezoelectric" and "piezoceramic" are equivalent terms. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to preferably includes piezoelectric elements in an actuating device. As mentioned in Mark, there are many advantages (size, weight, price, durability, and not requiring a reaction support, col 3 lines 5-10) using

piezoelectric elements, one would have been motivated to use piezoelectric elements suggested by Mark as the actuating means in Namon's device.

Claim 14: Namon discloses a device as in Claim 2; but does not specifically disclose that the device is arranged to create a secondary sound field in the space and includes a control unit connected to the actuating member for controlling the primary movement of the actuating member. However, Mark discloses that the device is arranged to create a secondary sound field (output signal 58 ... having a phase reversed from the phase of the vibration signal 54, col 3 line 45-50) in the space (passenger compartment, e.g., col 4 lines 9-11) and includes a control unit (controller 50, col 4 lines 6-7) connected to the actuating member for controlling the primary movement of the actuating member (to drive the actuators 42 and 44, col 4, lines 5-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a control unit to control the actuating device. As the purpose of the control unit is to cancel or significantly reduce the noise (col 4 lines 8-10, one would have been motivated to use a control unit along with the other arrangement suggested by Mark to control Namon's device to create a useful secondary sound field in the space.

Claim 15: Namon and Mark disclose a device as in Claim 14; but Namon does not specifically disclose that the device is arranged to reduce a primary sound field in the space by means of the secondary sound field and the device includes at least one sensor, which senses the primary sound field and is connected to the control unit. However, Mark discloses that the device is arranged to reduce a primary sound field

(vibration ... reducing the noise, col 4 lines 1-10) in the space by means of the secondary sound field (output signal 58 ... having a phase reversed from the phase of the vibration signal 54, col 3 line 45-50) and the device includes at least one sensor (46, col 4 lines 4-6) which senses the primary sound field (... detects this vibrations ..., col 4 lines 4-6) and is connected to the control unit (attached ... the associated sensor 46, col 3 lines 42-45). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made that using sensors connected to the control unit to sense the primary sound field will result in better control of the noise. One would have been motivated to associate sensors to a control unit along with the other arrangement suggested by Mark to Namon's device for precision control of the vibration noise (col 3 lines 35-40).

Claim 16: Namon disclose a device as in Claim 2; but does not specifically disclose that the space forms the passenger compartment in a vehicle. However, Mark discloses that the space is a passenger compartment (e.g., exposed to a passenger compartment 15 of a motor vehicle, col 2 lines 44-45). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to identify the passenger compartment as the target space. One would have been motivated to choose the passenger compartment suggested by Mark as the target space for Namon's device to reduce noise level.

Claim 17: Namon and Mark disclose a device as in Claim 16; but Namon does not disclose the membrane is one of a front shield and a rear window of the vehicle. However, Mark discloses that the membrane is one of a front shield and a rear window

of the vehicle (transparent member may alternatively be a wind shield or a rear window (e.g., col 2 lines 52-56). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made that any of a front shield and a rear window can be used as the membrane to be actuated. One would have been motivated to attach Namon's device on a wind shield or a rear window suggested by Mark to reduce noise level in a vehicle.

Claim 18: Namon discloses a device for actuating a membrane (plate wall member 311, col 3 lines 40-45, Fig. 9) arranged in an opening to a space, wherein the membrane has a first surface and a second opposite surface, and is limited by an edge area (end portions 313 and 314), extending around the membrane, wherein the device includes: a first strip (plate 511, col 4 line 5-11), which can be adapted to be attached to the surface of the membrane in the edge area; at least one exchanging members (links 540 and 541, col 4 lines 5-11, Fig. 11); and at least one actuating members (voice coils 330 and 331, col 3 lines 44-46, Fig. 9) arranged to transfer a reciprocating primary movement to the exchanging member, which is arranged to convert the primary movement (concurrent longitudinal reciprocation, col 4 lines 9-10) to a reciprocating secondary movement (plate to be reciprocated, col 4 lines 10-11) having a longer length of stroke than the primary movement (col 4 lines 9-11); but does not disclose a second strip. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second strip with similar structure to the first strip except that the orientation is mirror-opposite. As an additional strip will enable the device to be attached to a surface of a frame portion, one would have been motivated to

add a second strip (plate) along with the links to Namon's device in such a way that the strips moves towards and away from the other strip. But Namon does not disclose a vehicle including the device. However, Mark discloses a vehicle including a device (actuator pair 42 and 44) for actuating a membrane (transparent member, col 2 lines 40-56) arranged in an opening (passenger compartment 15, e.g., col 2 line 40-46) of the vehicle, wherein the membrane has a first surface (exterior surface 16, col 2 lines 45-46) and a second opposite surface (interior surface 14, col 2 lines 43-46), and is limited by an edge area (e.g., edges 26, 28, and 30, col 2 lines 57-58) extending around the membrane. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made that a device for actuating a membrane can be applied in a vehicle. As such an actuating device is capable of reducing the noise radiated into the passenger compartment, one would have been motivated to attach Namon's device in a vehicle suggested by Mark.

Claim 19: Namon and Mark disclose a vehicle as in Claim 18; and Namon further discloses the primary movement extends along a primary axis (x) (longitudinal direction along the plate 511) and the secondary movement extends along a secondary axis (z) (plate 511 reciprocable perpendicular to its direction of elongation, col 4 lines 4-6) forming an angle to primary axis (see Fig. 11).

13. Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Namon (3,107,746) in view of Mark (5,812,684), and further in view of Burke (3,484,006).

Claim 20: Namon and Mark disclose a vehicle as in Claim 19; but Namon does not disclose a rod which extends between and substantially in parallel to the strips and does not disclose more than one links in each exchanging member. However, Burke discloses a tool having a rod (link 13, e.g., col 2 line 29) along with more than one links (arms 11 and 12, e.g., col 2 lines 25-30), a strip (4th arm 14 in parallel to link 13, e.g., col 2 lines 30), and an actuator (piston rod 20 and cylinder unit 21, e.g., col 2 lines 40-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a rod between and substantially in parallel to the strips to move more than one links. As more links can support a longer strip, one would have been motivated to add a rod as suggested by Burke in Namon's device to move the links in unison so that the strips can be moved along the desirable axis.


Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Busque et al. (6,983,819) discloses entertainment sound panels; Flick (5,750,942) discloses vehicle window speaker mounting accessory and related methods; Satoh et al. (5,950,756) discloses a vibration isolator of vibration actively reducing apparatus; and Shields (5,196,755) discloses piezoelectric panel speaker.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Powen Ru whose telephone number is 571-270-1050. The examiner can normally be reached on Monday-Thursday 9am-4pm EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on 571-270-1065. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PR 
6/26/2006


James W. Myhre
Supervisory Patent Examiner